IN THE FIELD

Field Museum
Member Magazine

Vol. 94, No. 3
Fall 2023

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ON THE COVER
Explore the world of bloodsucking animals, insects, and the legendary creatures and mythical stories they've inspired. *Bloodsuckers: Legends to Leeches* explores how blood-feeding has influenced our world through science, medicine, and culture for thousands of years.

Let us know your thoughts about *In The Field* magazine. Email your comments to ITF@fieldmuseum.org

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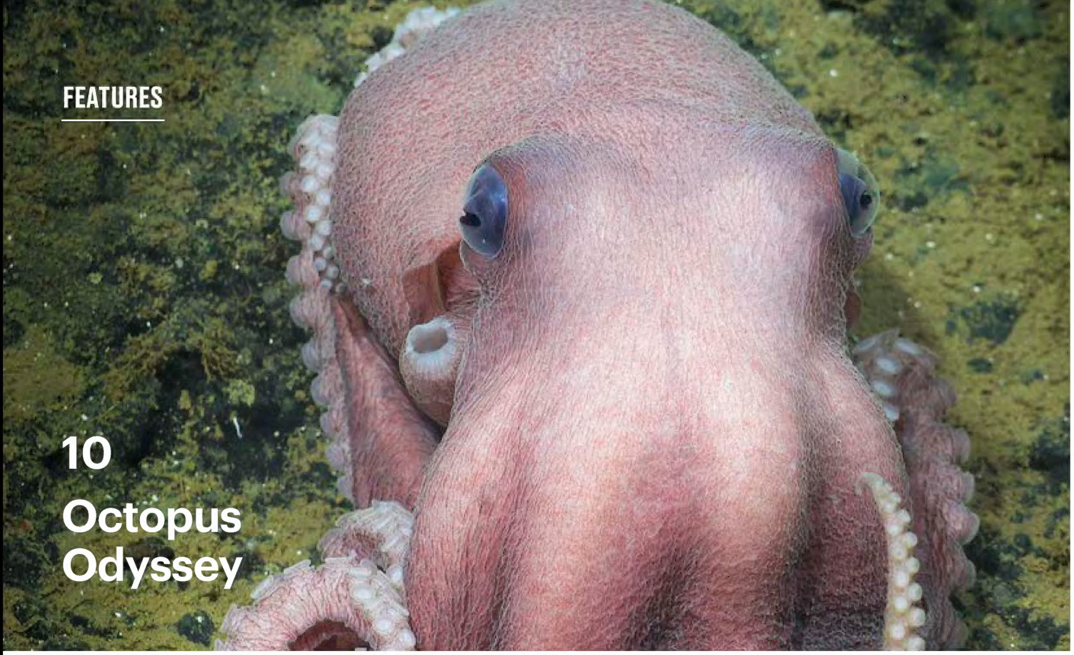
FEATURES



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Dear Friends,

FIELD MUSEUM 2021 (KYLE FLUBACKER PHOTOGRAPHY)

October was Member Appreciation Month. Of course, we appreciate our members every month, but I am glad for a special opportunity to express my personal gratitude to you for your support of our beloved Field Museum. As members, you are vital to our work across every aspect of our mission. Thank you for choosing to join us in the thrill of discovery.

Congratulations to the winners of our inaugural members' photo contest (see p.14–16). I was impressed by the many striking submissions and enjoyed seeing the world through your perspectives.

This issue features our new exhibition, *Bloodsuckers: Legends to Leeches*, now open. This special show comes to us from the Royal Ontario Museum in Toronto and really embodies the Field Museum's approach in its exploration of how human mythologies have been informed by the wonders of nature. I hope that you'll enjoy it.

Warm regards,

Julian Siggers

Julian Siggers, PhD
President and CEO

The MACHINE INSIDE BIOMECHANICS

What's a machine that's built to survive, move, and discover?

All living things—including you!—contain remarkable feats of engineering.

Investigate nature's mechanical marvels in *The Machine Inside: Biomechanics*. You'll uncover surprising strengths and hidden talents: jaws that crush over 8,000 pounds in one bite, ears that act as air conditioners, and a spring-like body that sprints at 80 miles per hour. All ages can try out interactive experiences that show how mechanics like wings and fins, pumps and pipes, and claws and jaws work in nature.

***The Machine Inside: Biomechanics* is now open on the ground floor of the Museum near *Underground Adventure*.**

The Machine Inside: Biomechanics is sponsored by NASCAR.

The Field Museum gratefully acknowledges the generous support provided by ITW and Searle Funds at The Chicago Community Trust for *The Machine Inside: Biomechanics* exhibition from 2014 through 2021.

FIELD MUSEUM

THE PERFECT GIFT AWAITS!

Embrace the spirit of the season with our Holiday Collection—where joy, togetherness, and celebration come together in style! Whether you are surprising a loved one or adding a festive touch to your own celebrations, our collection is your one-stop destination for spreading holiday cheer.

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TO
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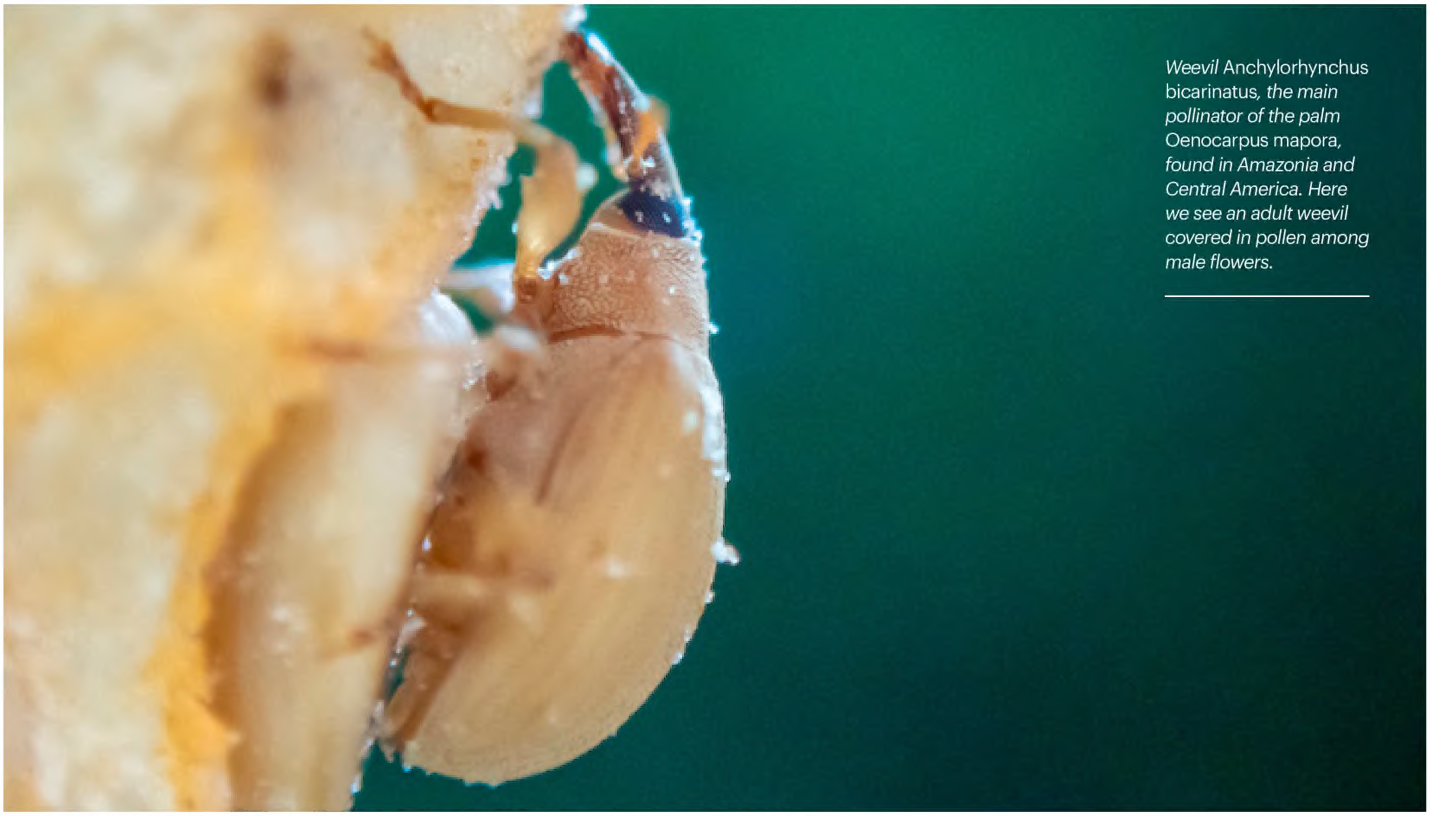


Weevil Anchylorhynchus bicarinatus, *the main pollinator of the palm* Oenocarpus mapora, *found in Amazonia and Central America. Here we see an adult weevil covered in pollen among male flowers.*

BRUNO DE MEDEIROS

THE UNSUNG HEROES OF POLLINATION

BY BRUNO DE MEDEIROS, PHD, ASSISTANT CURATOR OF POLLINATING INSECTS, NEGAUNEE INTEGRATIVE RESEARCH CENTER

When I first started studying beetles more than 10 years ago, I didn't know they were pollinators. This is still the case for much of the general public and beetle researchers alike. Recognizing this gap, I collaborated with colleagues from France to write a paper reviewing all we know about a special kind of pollinator that also use their host flowers as larval food: weevils (long-nosed beetles). These pollinators depend exclusively on their host flowers for their whole life cycle, which leads to different ecological and evolutionary dynamics when compared to other pollinators, such as bees. For instance, the African Oil Palm, a major source of edible oils, only became a viable crop worldwide after it was discovered that the palms were pollinated by weevils. Weevils have been interacting with pollen before flowers evolved and they remain a major group of pollinators today.

For this study, we searched for all the papers we could get our hands on and found at least 600 instances of weevil-plant pollinator interactions. Based on what we know, and some assumptions, we estimate that at least 2,000 species of plants depend on these kinds of pollinators globally. Many of these plants remain undiscovered, since the methods we typically use to study pollinators favor diurnal species that fly between flowers, such as bees and flies. In addition to calling attention to this unknown diversity, we summarized some of the traits of flowers and weevils involved in this kind of pollination. Many of these weevils are small, yellowish and rest in flowers during the day, flying at dawn or dusk. Many of the plants, on the other hand, are tropical trees and shrubs with large flowers or flower clusters. Sometimes they even produce their own heat and humidity, attracting the weevils. However, there are many instances of this type of plant-pollinator relationship that involve plants with different kinds of flowers, such as orchids. We hope this review will be a resource for researchers studying pollinators to revise their assumptions and pay more attention to the larger diversity of pollinating insects.

(Above) Bruno de Medeiros climbing the palm tree Oenocarpus mapora *in Panama to study its pollinators.*

TAUANA CUNHA

SABER-TOOTHED FOSSIL REVEALS SCRAMBLE FOR DOMINANCE

BY PIA VIGELETTI, PHD, RESEARCH SCIENTIST, NEGAUNEE INTEGRATIVE RESEARCH CENTER

The mass extinction event known as "The Great Dying," which occurred over a quarter of a billion years ago, was much bigger than the one that wiped out the dinosaurs, and is becoming increasingly important for understanding our current climate change crisis.

Over 250 million years ago, at the end of the Permian period, massive volcanic eruptions in Siberia caused a runaway greenhouse effect, and catastrophic climate change. These changes killed nine out of every ten species on the planet, and set in motion a "scramble for dominance" as species fought for a foothold in their changing environments. A new study led by Christian Kammerer, PhD, (North Carolina Museum of Natural Sciences and research associate at the Field Museum), Jennifer Botha, PhD, (Evolutionary Studies Institute, University of the Witwatersrand), and myself investigated the species extinctions in a group of Permian apex predators called gorgonopsians. Gorgonopsians are a group of proto-mammals that included the first saber-toothed predators on the planet. Most were lion or tiger-sized and likely had skin like an elephant or a rhino; while vaguely reptilian in appearance, they were part of the group of animals that includes modern mammals.

After reviewing South African gorgonopsian specimens leading up to the mass extinction, we realized something very significant happened—nearly all African gorgonopsians went extinct at the same time. They were replaced by *Inostrancevia*, a Russian native which appeared to have expanded its range 7,000 miles across the supercontinent Pangaea, filling a gap in a faraway ecosystem that had lost its top predators.

It's not clear how long *Inostrancevia* took to cross Pangaea and arrive in what's now South Africa. But, *Inostrancevia's* reign was brief, and it too went extinct as changes to the climate became too much for them. This indicates that these top predators were "canaries in the coal mine" for the larger extinction event to come. The species that survived did so by the skin of its teeth, including our direct mammal ancestors who seemed to endure climatic extremes from the safety of burrows. This makes "The Great Dying" one of the best examples of what we could experience with our current climate and extinction crisis; the only difference now is we know what to do and how to stop it from happening.

Giant gorgonopsian Inostrancevia *with its dicynodont prey, scaring off the much smaller African species Cyonosaurus.*

© MATT CELESKEY

(Above) What is blood? Learn about what this essential fluid is made of.

(Right) Bloodsuckers: Legends to Leeches *includes larger-than-life models and real specimens of bloodfeeders.*

BLOOD SUCKERS

LEGENDS TO LEECHES

© ROYAL ONTARIO MUSEUM, 2019

By Lauren Boegen, Exhibitions Project Manager; **Marie Georg,** Senior Exhibition Developer; **Maureen Turcatel, PhD,** Collections Manager, Gantz Family Collections Center

The itch of a mosquito bite. Swatting away horse flies. Dracula decorations at Halloween. We simply can't avoid bloodsuckers!

Blood sustains a number of birds, mammals, invertebrates, and fish. In turn, bloodfeeders inspire our legends, medicine, and pop culture. *Bloodsuckers: Legends to Leeches* includes more than 30 different kinds of birds, mammals, fishes, insects, and other invertebrates, representing tens of thousands of bloodfeeding species. Through specimens, models, interactives, and live animals, *Bloodsuckers: Legends to Leeches* explores the evolution and diversity of bloodfeeders in nature as well as their cultural impact. The exhibition encourages visitors to appreciate their importance and gain the confidence to live side by side with these resourceful creatures.

Just in time for spooky season, an immersive setting of historical bloodletting tools, including live leeches, introduces the impact of bloodfeeders on medicine in the past and present. Visitors will also meet mythological bloodsuckers like vampires, learning more about the real life

© ROYAL ONTARIO MUSEUM, 2019

© ROYAL ONTARIO MUSEUM, 2020

inspiration for these creatures, and see objects people have historically used to protect themselves from the macabre.

Also featured is the research of Collections Manager Maureen Turcatel, PhD. Visitors will see the tools and techniques she uses to collect all over the world, as well as featured specimens from the Museum's collection.

On the practical side, the exhibition presents science-based recommendations through high-resolution photography, media interactives, and live specimens on how to avoid bloodfeeders and blood-borne diseases.

WHETHER YOU LOVE THEM OR HATE THEM, BLOODSUCKERS AREN'T GOING ANYWHERE

While many of these creatures may take our blood, we can take inspiration from them for scientific and creative innovation. Come and learn how to live with and appreciate these fascinating, resourceful animals!

© ROYAL ONTARIO MUSEUM, 2019

Field Museum Major Sponsors:
Abbott and Magellan Corporation

Exhibition Organizer:
ROM (Royal Ontario Museum)

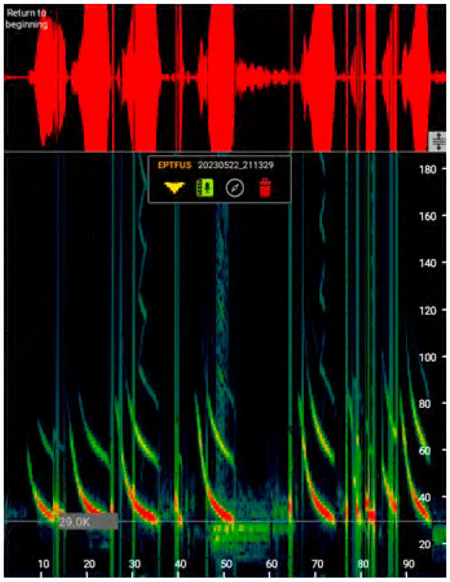
Bloodsuckers: Legends to Leeches is produced and circulated by ROM (Royal Ontario Museum), Toronto, Canada.

(Above) See larger-than-life 3D models of mosquitos, leeches, and black flies.

(Left) Discover the diversity of blood-feeding animals from lampreys to bats.

(Left) Assistant Collections Manager Lauren Johnson in the field showcasing the Wildlife Acoustics Echo Meter Touch 2 Pro microphone.

(Below) Spectrogram display of a Big Brown Bat, Eptesicus fuscus, frequency while foraging at night.



LAUREN JOHNSON

THINGS THAT SHRIEK IN THE NIGHT

BY LAUREN JOHNSON, ASSISTANT COLLECTIONS MANAGER OF MAMMALS, GANTZ FAMILY COLLECTIONS CENTER

A new Field Museum initiative has taken flight this year. In an effort to document small mammal diversity across Chicagoland, Museum staff have expanded their monitoring to include bioacoustics. What they are finding is a little batty.

Bats play a significant role in our ecosystem by means of pollination, seed dispersal, and most importantly, pest control. The bats in Chicago are insectivorous and can devour thousands of pesky mosquitos every night. Despite their ubiquity and ecological significance, few studies have looked at urban bat populations, distribution, and habitat constraints through acoustic monitoring. Passive acoustic monitoring systems use special technology to record echolocations. The Field team and I are using an Echo Meter Touch 2 Pro to track bats across Chicago.

This compact, yet robust, device can track ultrasonic calls in real time and visualize the echolocations using a built in spectrogram. The team conducts non-invasive walking transects (a straight line that cuts through a natural landscape) in select parks and as bats fly nearby, the spectrogram captures their unique calls. This data can help scientists determine which bat species are present and how they are foraging. Of the thirteen types of bats native to Illinois, eight species are commonly found around the Chicagoland area. From little and big brown bats to the flashy eastern red bat, each species has their own feeding behavior and distinctive call. Thus far, we have recorded and identified six of the eight bat species in Chicago. The data will be compiled at the end of the sampling season this fall and contribute to a larger bat monitoring program spearheaded by Liza Lehrer, MS, at the Lincoln Park Zoo's Urban Wildlife Institute, which has been ongoing since 2018.

It is important to monitor our bats, especially as populations continue to decline due to white-nose syndrome—a deadly fungal infection that affects many species of bats—and habitat loss. Chicago bats face the unique challenge of constantly adapting to their ever changing city environment. Bats are slow to recover from population disturbance because of their low reproductive rates, and expanding urbanization threatens bat roosting sites. By gaining a clearer understanding of Chicago bats, we can be better advocates for them and secure habitats that preserve the incredible mammal diversity of Chicago.

WELCOME ANDERSON FEIJÓ, PHD

BY MARK ALVEY, ACADEMIC COMMUNICATION MANAGER

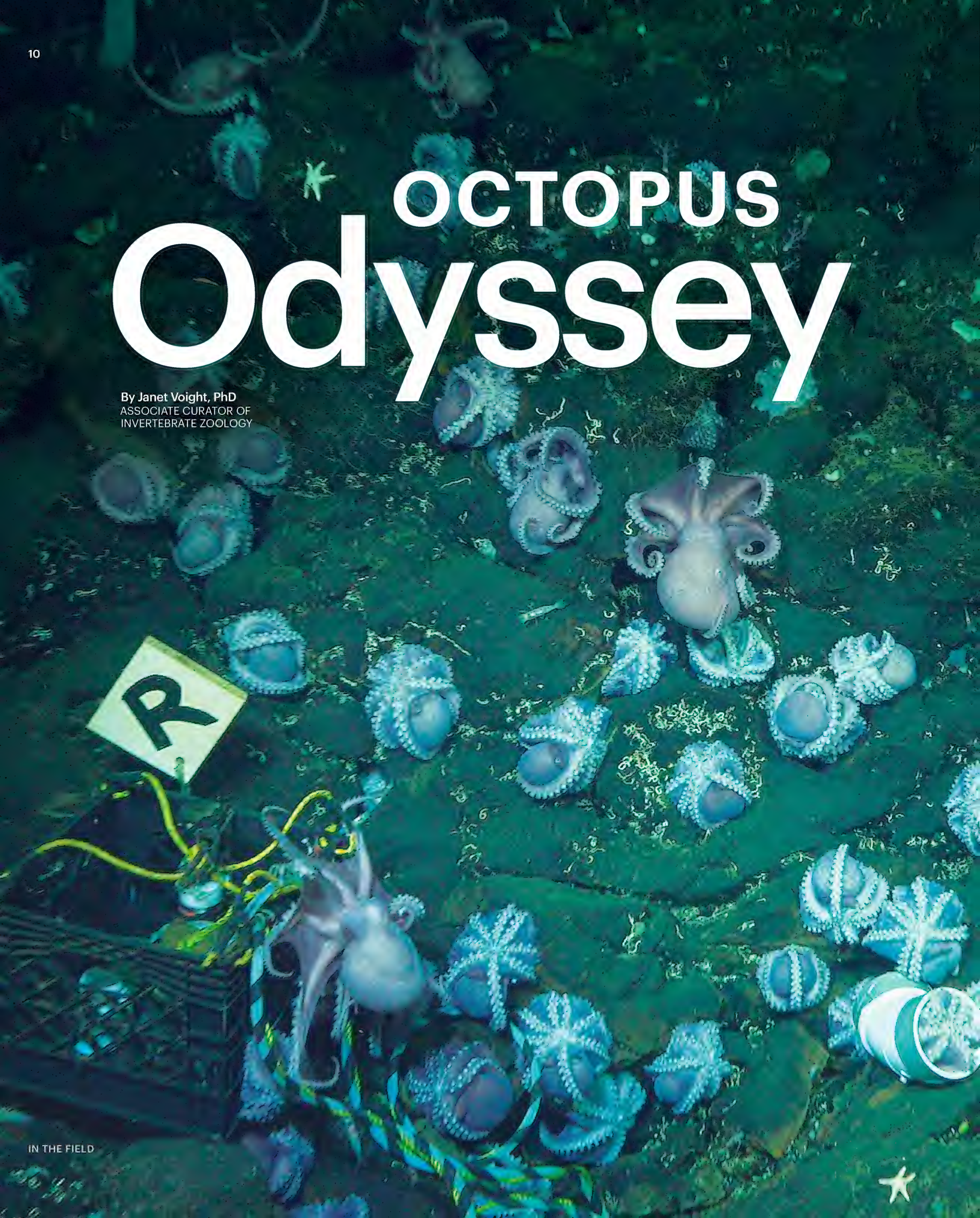
Anderson Feijó, PhD, joined the Field as Assistant Curator of Mammals this month. He comes to us from a position as Assistant Professor at the Chinese Academy of Sciences in Beijing. Originally from Brazil, Feijó's broad expertise includes evolutionary biology, mammal systematics, animal diversity and ecological interactions. He also studies the impact of climate change on biodiversity and conservation biogeography. His impressive publication record features more than 97 peer-reviewed works, including articles in top-tier journals like *Proceedings of the National Academy of Sciences (PNAS), Frontiers in Genetics, Molecular Biology and Evolution,* and *Proceedings of the Royal Society B.*

Feijó's interests in mammals and museums were sparked at the same time. In his first semester as an undergraduate, he volunteered in the mammal collection of the Paraiba Federal University in Brazil. "This was the first time ever I set foot in a scientific collection or a museum of any sort," he relates. "I still remember being amazed by the diversity of mammals carefully preserved in the collection, the species, shapes, habits, and adaptations to different environments. This passion for mammals and museum collections has shaped my entire life path."

While mammals are among the most-studied animal groups, much still remains to be documented and described, even for groups once thought to be well known—for example, armadillos, or cats, both of which he has published on recently. In addition to describing mammal diversity, from bats, to rodents, to armadillos, to felids—he has used museum specimens to show how past climate change has shaped the evolution of modern mammals, why some species are more resilient to extinction events, and which genes and traits allow mammals to evolve in extreme high altitudes. His scientific path nicely exemplifies the boundless resources provided by natural history museums for the study of nature and its complexities. As he observes, "the Field's Mammal Collection, with more than 230,000 specimens from all continents, provides the perfect environment to broaden my research and explore large questions on mammal diversity, ecology, evolution, and biogeography, from past, current, and future perspectives. Needless to say, I am extremely excited to join the Field Museum community and carry on the great work and legacy of Bruce Patterson, Larry Heaney, and previous mammal curators, in making the Field Museum a global reference for mammal studies."

JEFFERSON MIKALAUSKAS

*(Above) Feijó with a new species of bat from Brazil (*Histiotus diaphanopterus*) that he described in 2015.*



OCTOPUS Odyssey

By Janet Voight, PhD
ASSOCIATE CURATOR OF
INVERTEBRATE ZOOLOGY

> Five species of octopods were collected in total, four of which I hypothesize are new to science.

In July 2019, I was among six scientists who learned our proposal to use the Schmidt Ocean Institute's (SOI) ocean-going ship and Remotely Operated Vehicle (ROV) was funded. On May 31, 2023 our team of 20 scientists (65% of whom were female) boarded the ship in Costa Rica for a 22-day research cruise.

We wanted to find out why hundreds of octopods brood their eggs at 3100 meters depth where warm fluids waft up from the Earth's crust. Maybe the fluids clear the rocks of sediment and offer a clean egg attachment surface; maybe a microbe in those warm fluids gives the animals a little edge, or maybe the warmth speeds egg development. To test whether or not a clean hard surface is key, I deployed artificial shelters in and outside of the fluid. To test if microbes make a difference, onboard Field Museum Research Associate Holly Lutz, PhD, sampled collected specimens to see if the microbiome of octopods living in the fluid differed from those living away from it. Temperature couldn't be tested directly, because the octopod eggs might take years to develop and our cruise time was short.

We also sought to understand more about the warm fluids (the bottom of the ocean is usually very cold), and to sample other animals for study by Costa Rican scientists. With limited time and many objectives, the risk of things not getting done is very real, but the first two of the cruise's eventual 14 ROV dives accomplished everything I hoped for, and the good just kept coming. Five species of octopods were collected in total, four of which I hypothesize are new to science.

Did the octopods use my artificial shelters? We'll find out when we return to Costa Rica in December!

Want to know the latest? The SOI broadcasts real-time ROV footage to the internet. To view this footage, ask questions through chat, and listen to a scientist explain what they think is going on, scan the QR code after Dec. 4!

(Opposite) Dorado Seamount, with an amazing consortium of brooding octopus, Markers and a few of Janet's artificial shelters.

(Top) An octopod having a moment alone.

(Above) Mission Control Room, with ROV pilots, scientists and live-streaming video being sent to the internet.

ALL IMAGES © ALEX INGLE / SCHMIDT OCEAN INSTITUTE

ADDING TIME-DEPTH TO ENVIRONMENTAL CONSERVATION

BY BILL PARKINSON, PHD, CURATOR OF ANTHROPOLOGY, NEGAUNEE INTEGRATIVE RESEARCH CENTER; **JAMIE KELLY, MS,** ANTHROPOLOGY COLLECTIONS MANAGER, GANTZ FAMILY COLLECTIONS CENTER; AND **MITCH HENDRICKSON, PHD,** ADJUNCT CURATOR OF ANTHROPOLOGY, PROFESSOR OF ANTHROPOLOGY AT UNIVERSITY OF ILLINOIS AT CHICAGO

About an hour south of Chicago, our team of archaeologists from the Field Museum and the University of Illinois at Chicago have partnered with a consortium of conservation groups to investigate how the landscape has changed over the last 10,000 years.

Established in 1996 by the U.S. Forest Service, the Midewin National Tallgrass Prairie is the largest conservation site in the Chicago region. Covering nearly 20,000 acres near the confluence of the Des Plaines and Kankakee Rivers, Midewin is a model of successful conversion of federal property to public open space. After decades as the U.S. Army's largest ammunition production facility, Midewin today is home to American bison, miles of public trails, and rare flora and fauna.

Initiated in 2021, the Tallgrass Prairie Archaeological Landscapes Project (TPALP) seeks to model the evolution of human-landscape interactions in the Chicagoland metropolitan area throughout the Holocene (11,700 years ago–present day). Funded by a generous grant from the Negaunee Foundation, our research provides a long-term perspective for the conservation efforts underway at Midewin being conducted by Openlands, the Wetlands Initiative, The Nature Conservancy of Illinois, and Chicago Botanic Garden. In 2022, geophysical and subsurface testing near the confluence of Prairie Creek and the Kankakee River successfully identified the location of an important site that dates to the Mississippian period, about 1000 AD, during the time when hunting and gathering groups, who were experimenting with horticulture, settled down into more permanent villages. In addition to conducting additional excavations, soil chemistry studies, and geophysical research at this site, the team also will explore another contemporaneous site on a tributary to the Des Plaines River to investigate settlements in different parts of the landscape.

(Below) Members of the Tallgrass Prairie Archaeological Landscapes Project field crew, May, 2023

Louis Agassiz Fuertes studies an African Lammergeyer specimen on expedition to Ethiopia, 1926.

(Below) Watercolor illustration of an African lammergeyer, or bearded vulture, painted by Fuertes in 1926.

FIELD MUSEUM, CSZ55287

FIELD MUSEUM, Z93315_26C

OLD SPECIMENS: USEFUL TOOLS OF THE PAST, PRESENT, AND FUTURE

BY ESTHER CHAVIRA AND **GILLEECE THORSON,** GRAINGER SCIENCE HUB COORDINATORS

In 1926, Field Museum scientists embarked on a seven-month expedition to collect specimens in Ethiopia (then called Abyssinia). This team included one of the most influential artists of American ornithology, Louis Agassiz Fuertes, who illustrated birds and helped prepare specimens on-site. Almost 100 years later, Field Museum researchers are using these specimens to study how bird populations have changed in Ethiopia over time. This research has an important message not only about conservation, but the value of natural history collections.

Something we hear every day in the *Grainger Science Hub* is "Where did you get these animals?" and "Why do you have them?" It can sometimes be an uncomfortable conversation for guests, but it prompts a discussion about the importance of collecting. Historical collections provide a snapshot of a species at a particular point in time and place, and years later continue to inspire scientists to study specimens in new and innovative ways.

The members of the 1926 expedition never imagined how these specimens would be used today—comparing their genomes to those of modern-day birds. This kind of study is of particular interest where populations have suffered dramatic decline.

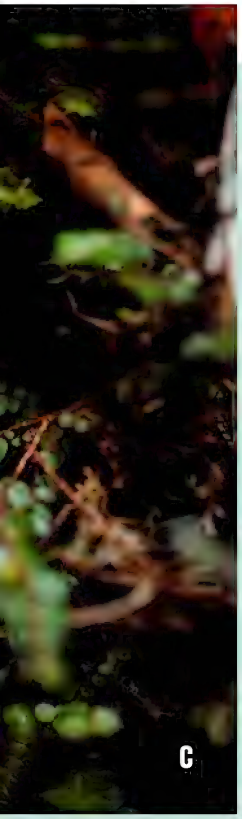
This is not the first time the bird collection has been used in new research. Notably, peregrine falcon eggshells were a key factor in banning the pesticide DDT and decades of window collision specimens provide insight into how cities can mitigate harm to migratory birds. Museum specimens hold the key not only to understanding the past and the present but to unlocking discoveries in the future. In another 100 years, who knows what we'll be able to learn from the Field Museum's collection?

Visit *New Uses for Old Specimens* in the *Grainger Science Hub* to learn more about this research and get a close look at these century-old bird specimens.

THE WINNERS!

In The Field Photography Contest

The Field Museum is excited to announce the winners of the first-ever *In The Field* Photography Contest! Thank you to all who participated. We loved seeing the Museum and the natural world through your eyes. Make sure to join us again next year and, in the meantime, view these wonderful photos in-person in the Member Holiday Lounge, Tuesday, Dec. 26 through Friday Jan. 5 from 10am-4pm.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In The Field Photography Contest Winners
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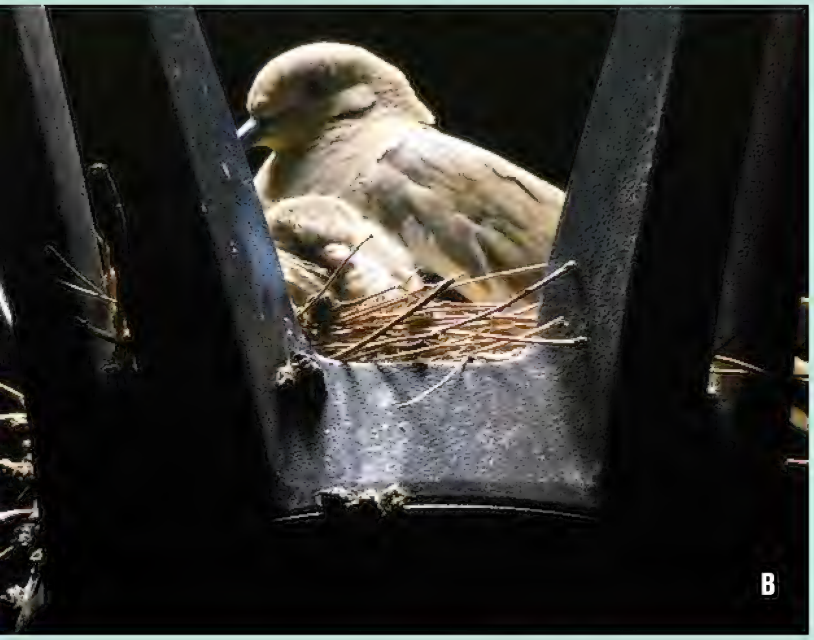
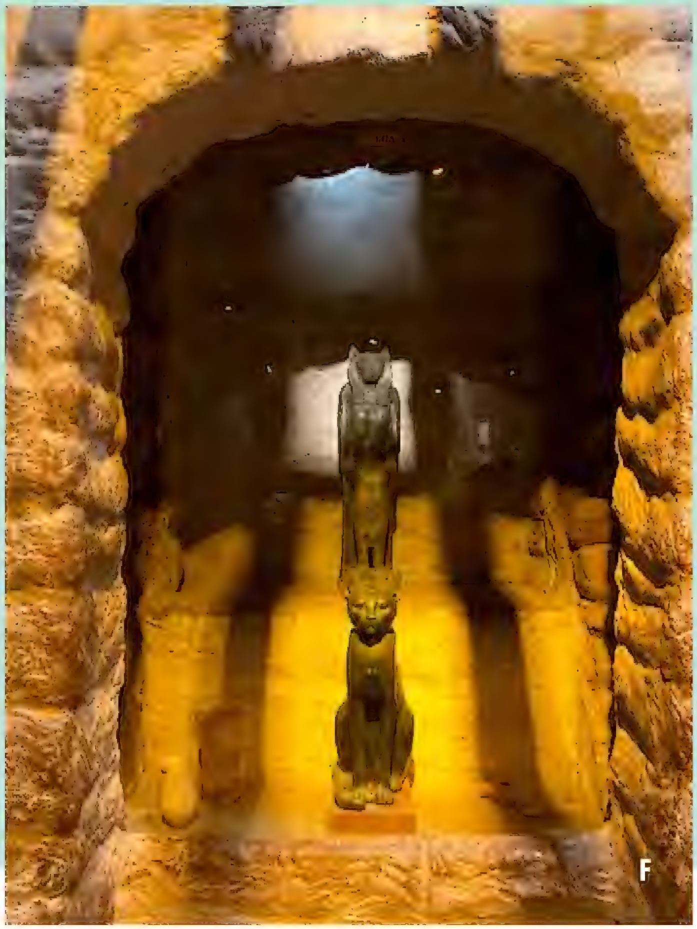




CATEGORIES:

Urban Wildlife

A. Recess for the School of Baby Geese
Photographer: Anni Huang, age 11

Taken at the Brookfield Zoo.

B. Unlikely Sanctuary
Photographer: Mark McClelland

A white-winged dove and its baby sit in a nest in an iron street lamp in Valladolid, Mexico. Despite being night time, they are brightly lit.

Real-Life Diorama

C. E. hochstetteri At Home
Photographer: Micah Rynders

New Zealand is a generous land, eager to share with you its vast natural beauty and grandeur. With jagged peaks scraping the clouds, vertical cliffs rising heroically out of the sea, and glaciers carving valleys into the jungle, it is easy to rush from one great landscape to the next when traveling the South Island. Slow things down, however, and you may be deeply rewarded with the breathtaking blue of E. hochstetteri.

D. Among the Thorns
Photographer: G. Vasey, age 11

This 11-year old photographer delights in finding beauty in the details. She took this picture at Glacier National Park.

Museum Moments

E. Beside Myself
Photographer: Greg Bruno

A model of a Neanderthal man standing next to his skeleton in the *Griffin Halls of Evolving Planet*.

F. Magic Kitty
Photographer: Jess Olhava, age 11

Inside Ancient Egypt Bastet statue

PARASITIC WORMS JUST GOT EVEN WEIRDER

BY TAUANA CUNHA, PHD, WOMEN'S BOARD POSTDOCTORAL SCIENTIST; AND **BRUNO DE MEDEIROS, PHD,** ASSISTANT CURATOR OF POLLINATING INSECTS; NEGAUNEE INTEGRATIVE RESEARCH CENTER

You may not have heard about them, but hairworms are a crazy group of parasitic animals that can affect the behavior of their hosts and make them do unexpected things. With over 300 species in freshwater environments (like ponds and streams in Illinois and across the world), hairworm larvae grow inside terrestrial insects, like crickets and mantids. Once the worm is mature, it drives the host to move erratically and jump into water (at risk of drowning or becoming fish food). The adult worm then emerges (through the rear-end of the host...) to find mates for reproduction and start the cycle again.

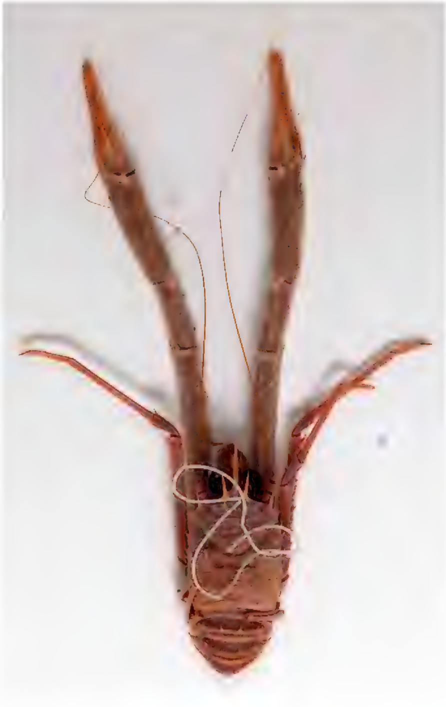
We recently discovered another trait, unique to hairworms, that makes them even weirder. Together with colleagues from Harvard University and the University of Copenhagen, we originally set out to sequence the genomes of two species—one freshwater species, and one of the few existing marine species (which parasitize crustaceans like squat lobsters and crabs). What we did not find in the genomes was striking: both species were missing about 30% of a set of genes that is expected to be present across basically all animals (from mammals and fish to sponges and sea stars).

By looking at what the missing genes usually do in these other animals, we found that they give the instructions to produce cilia – tiny hair-like cellular structures responsible for important functions such as sensory perception, cell movement, and filtering particles. For example, the tails of sperm cells are cilia, and cells in the retinas of our eyes are ciliated. Scientists already knew hairworm sperm did not have tails, but we did not know for sure about the presence of cilia, or lack thereof, in all other parts of the body. With the genomes we were able to demonstrate that hairworms do not have the genetic machinery to make cilia in the first place.

Because both animals from the two different environments were missing the same genes, we can infer that the loss happened deep in the past, in the ancestor of all modern hairworms. It is not clear what effect the loss of cilia might have had in their lifestyle, but the genes that they do have might one day reveal whether or not these animals evolved new ways to perform similar functions.

(Below) A dead squat lobster, Munida sp.*, collected in Norway that hosted a marine hairworm. The worm was collected for genome sequencing.*

(Bottom) A live freshwater hairworm in Bruno de Medeiros's hand in the Muir Woods National Monument in California.



MARTIN SØRENSEN

BRUNO DE MEDEIROS

THE GREAT BEAR HUNT

TOLD BY KAREN ANN HOFFMAN, ONEIDA NATION OF WISCONSIN

A long time ago, a Great Bear was marauding the gardens outside of one of our villages. Every night, beans, corn, and squash intended for winter storage and the sustenance of the People were ravaged by Bear. Fearful of famine, the best hunters in the village pursued the Great Bear, but to no avail. Bear was strong, and he was smart. Some say Bear was a bit magic as well. After a time, word of the Great Bear spread throughout the villages, and one day four brothers and their little white dog, Four Eyes, arrived.

"We'll slay that bear and save the gardens," they proclaimed. The people of the village did not hold out much hope.

"Our best hunter's have tried," they said. "But Bear is too strong and too smart."

"Oh, you don't understand," said the brothers. "We have Four Eyes to help. He may be little, but once Four Eyes starts on a trail he never gives up." So, next sunrise, the brothers and Four Eyes went into the garden. It didn't take little Four Eyes long to pick up Bear's scent.

"Yip! Yip!" cried Four Eyes. "I have Bear's scent! Come on, let's go!" The brothers followed Four Eyes, their weapons at the ready. They followed Four Eyes through the garden. They followed him through the fields. They followed him across a river and through a forest. Day and night, night and day, they followed Four Eyes without rest. They never gave up.

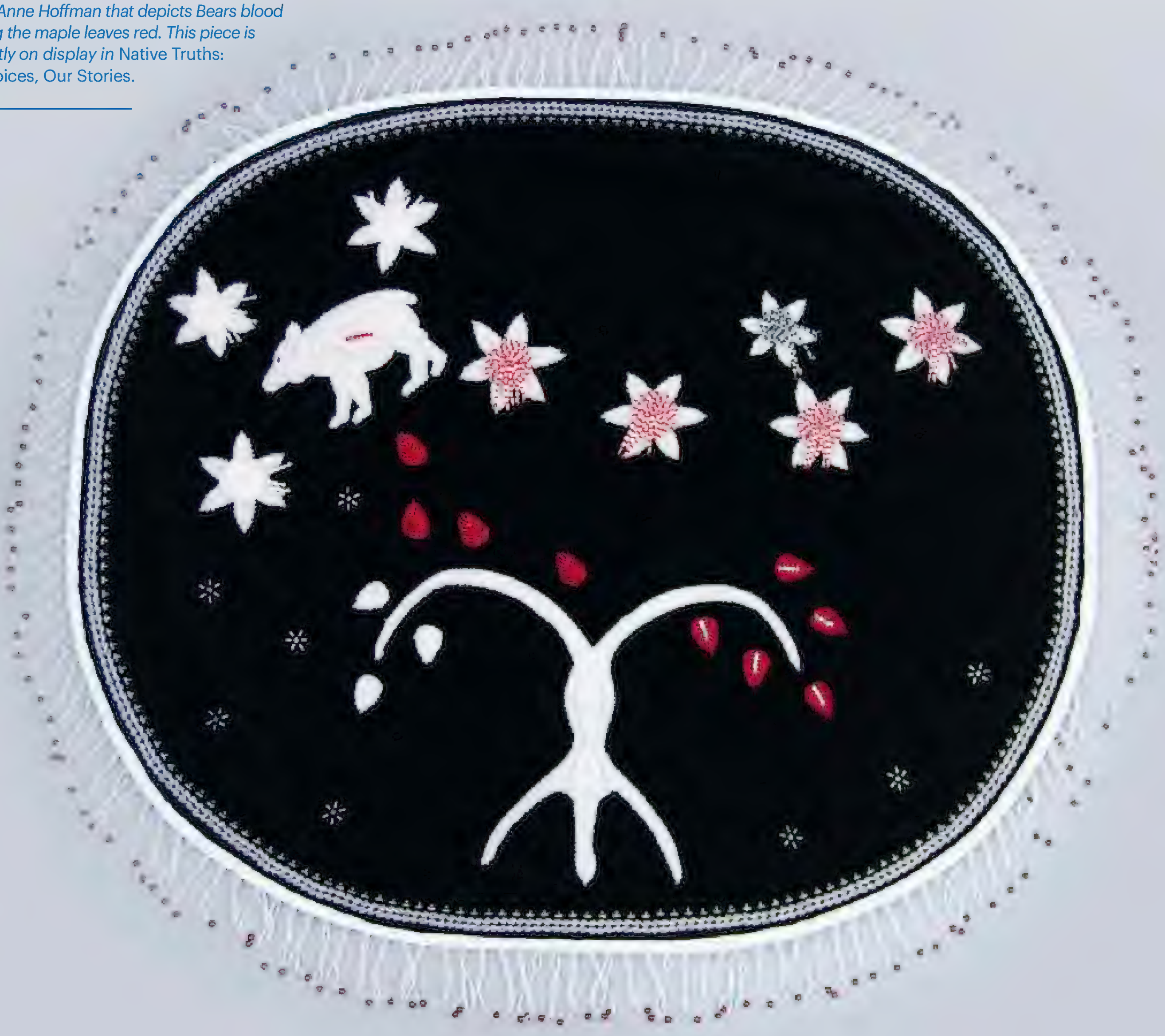
"Yip! Yip!" cried Four Eyes. "I have Bear's scent! Come on!" Finally, long past exhaustion, Four Eyes caught up to Bear. One of the brothers approached the cornered Bear and killed him. It was only then that the hunter brothers realized that they and Four Eyes chased Bear way up into the sky.

Mortally wounded, Bear's blood spilled from the sky, coloring Maple's leaves below a bright red. Well, because it's wrong to kill something without celebrating that gift of death, the hunter brothers feasted on Bear's flesh. As they cooked the bear meat, fat sizzled and fell to the earth as snow. Four Eyes and the brothers sang for Bear. They feasted on Bear. They ate and ate up in the sky and, after their feast, they sat down, rested, and soon fell asleep. After a while, the brothers' slumber was interrupted.

"Yip! Yip!" cried Four Eyes. "I have Bear's scent! Come on!" You see, come spring, as Dipper rights himself in the sky, Bear reconstitutes himself and continues his celestial journey with Four Eyes and the brothers again in pursuit across the heavens. Because, once Four Eyes starts on a trail, he never, ever gives up.

Discover more stories from *Native Truths: Our Voices, Our Stories* online at fieldmuseum.org/native-truths.

(Below) A hand-beaded mat created by Karen Anne Hoffman that depicts Bears blood turning the maple leaves red. This piece is currently on display in Native Truths: Our Voices, Our Stories.



NOVEMBER 2023

Native American Heritage Month

Join the Field Museum in celebrating Native American Heritage Month!

November is Native American Heritage Month. Join us in celebrating the diversity of values, traditions, and languages that make up the rich cultures of Native American communities this month and all year long. And don't forget to stop by *Native Truths: Our Voices, Our Stories* to experience stories told by Native people of self-determination, resilience, continuity, and the future.

Tuesday, November 7 and Tuesday, November 21
Story time with Chicago Public Libraries

Friday, November 10
Cultural performance by Waterbird Dancers that features Native American song and dance

The Field Museum gratefully acknowledges the Sarowitz Family for lead support of *Native Truths: Our Voices, Our Stories*. Major support is offered by Robert R. McCormick Foundation, the Efroymson-Hamid Family, Roger and Peter McCormick/Chauncey and Marion D. McCormick Foundation, and Mellon Foundation.

Additional support is provided by Carolyn S. Bucksbaum, Elizabeth Morse Genius Charitable Trust, Julie and Matthew K. Simon, and Cia and Tom Souleles.

CYRUS TANG FOUNDATION AWARDS MAJOR GRANT FOR CREATION OF ASIAN HISTORY CURRICULUM

BY BRIDGETTE RUSSELL, PUBLIC RELATIONS

The Cyrus Tang Foundation has awarded the Field Museum a $1-million, three-year grant to develop a suite of K-12 classroom and virtual lessons on Asian history. It will fulfill new Chicago Public Schools (CPS) teaching requirements enacted to help improve public knowledge of Asian American, Native Hawaiian, and Pacific Islander (AANHPI) histories and cultures, build cultural empathy, and combat racism. The collaboration will focus on "creating, teaching, and uplifting Asian and Asian-American history in classrooms," says Aimee Davis, Senior Director of Learning at the Field Museum. "We know that strengthening cultural empathy helps students succeed, both qualitatively and quantitatively, and encourages them to be critical thinkers."

This collaboration between CPS, the Field, and the Cyrus Tang Foundation serves the Teaching Equitable Asian American Community History (TEAACH) Act, passed in Illinois in 2021. The TEEACH Act seeks to create a more inclusive and comprehensive history education for public school students, making Illinois the first state in the country to ensure Asian American representation in K-12 public education.

The Field will partner with four local and six organizations in target states (California, Rhode Island, New Jersey, Connecticut, Florida, and Ohio) to create a suite of student workshops, teacher professional development opportunities, and virtual programming and field trips. Within the Chicago region, these programs will take a more robust approach through in-classroom instruction and focused field trips to the Field Museum's *Cyrus Tang Hall of China* and other exhibitions. The initiative will inject contemporary stories and help teachers engage students in AANHPI history through a community-centered perspective, according to Davis. Throughout the course of the project, students and educators from thousands of classrooms nationwide will have unfettered access to the materials in the *Cyrus Tang Hall of China*, the *Regenstein Halls of the Pacific*, and other related exhibitions at the Field.

(Top) Inside the Cyrus Tang Hall of China, *visitors learn the story of China, a land of diverse societies unified by shared traditions and a history of dynamic change through a collection of rare textiles, rubbings, ceramics and metalwork—including this cast iron bell from the Qing Dynasty (1644-1911).*

(Above) Visitors discover vast networks of trade as exemplified by the Java Sea Shipwreck Collection.

Take me out and explore!

Make your own Field Journal!

Scientists use field journals to record their observations in nature. These notes can lead to new discoveries. They also tell people what the world was like at a specific time and place. Making a personal Field Journal can remind you what you saw, how you felt, and what you were thinking about.

Supplies:

☐ Empty notebook or loose paper

☐ Pencils, pens, markers, or crayons

☐ Outdoors or window views

OPTIONAL:

☐ Tape or glue

☐ Binoculars, magnifying glass, camera

☐ Official Field Museum field guides from fieldguides.fieldmuseum.org or other animal identification resources

Steps:

1. Gather your supplies

- **Get your notebook and pencil.** Or fold paper and staple it along the crease to make your own notebook.
- **Check the weather first.** What should you wear outside to feel comfortable? Do you want to bring field guides, binoculars, a camera, or a magnifying glass?

2. Explore the Outdoors

- **Go outside!** Have an adult help you find a good place to observe nature. Nature can be found everywhere!
  + Parks
  + Plant beds along sidewalks
  + Yards
  + Even city streets have plants and animals if you look closely!
- **Look around.** Do you see any movement? Get closer to plants, animals or insects if you can! Move slowly, keep very quiet. Look from different spots. Look up in the tree tops and down in the dirt. If you have them, use binoculars and your magnifying glass. Do you notice anything new?

3. Record your observations

- **While you are outside, open your journal and start recording your observations.** Field Museum scientists start with information like the date, location, time, and weather conditions. You decide what you put in your journal, follow your interests and inspirations!
- **You can even collect plant specimens to add to your journal.** Make sure to label where and when you found it.

Fill in the other side!

Make your own
Field Journal!

Take me out and explore!

Print these labels and fill them out to attach to your herbarium sheet.

Common Name:

Location:

Collected By:

Date:

Common Name:

Location:

Collected By:

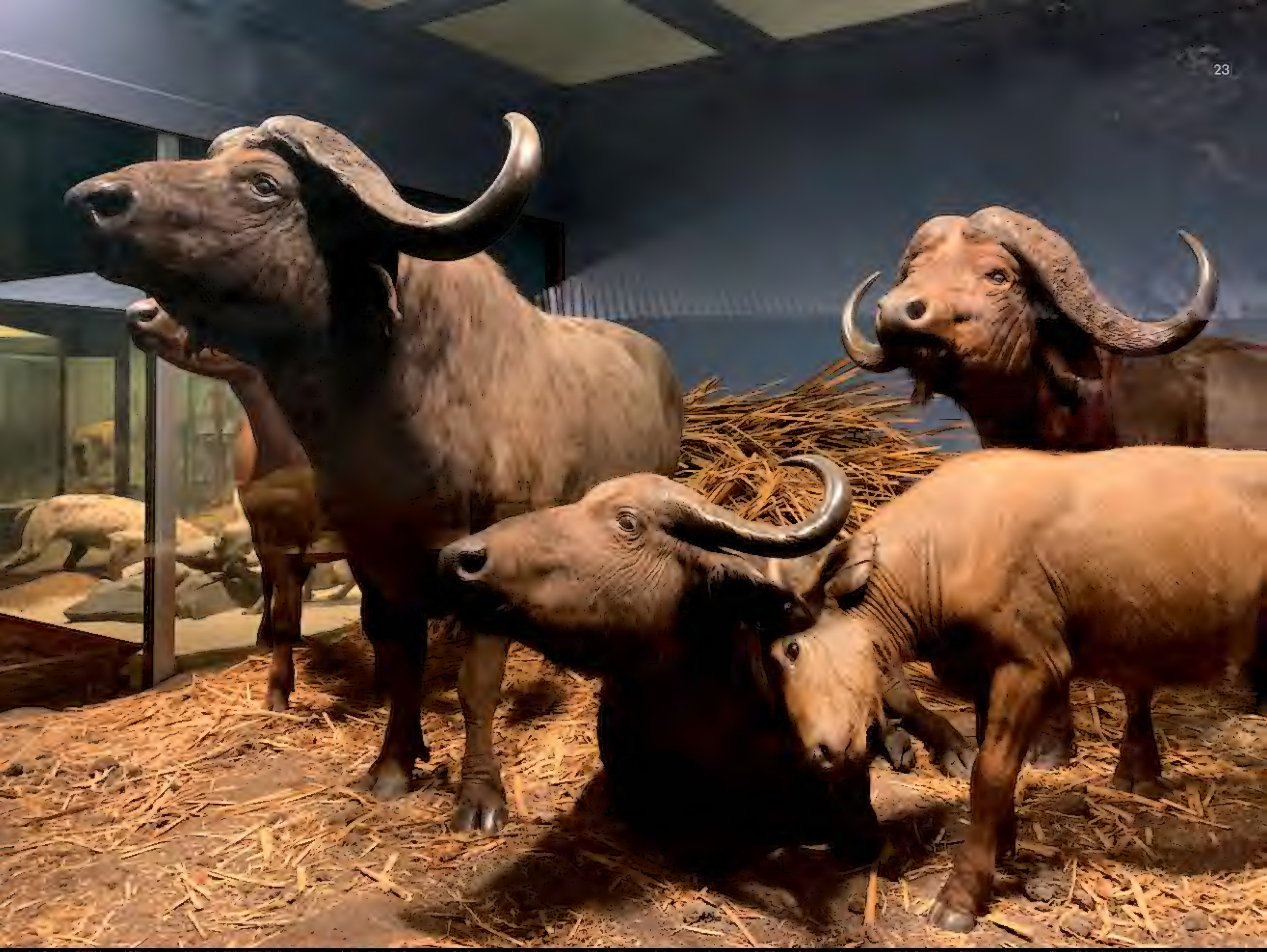
Date:

Common Name:

Location:

Collected By:

Date:



Carl Akeley's African Buffalo Group

The five African Buffalo in Rice Hall tend to get less attention than the Tsavo man-eaters, but the group is no less important in the Museum's history. It is Carl Akeley's last completed habitat group for the Field Museum—but unlike the rest of his taxidermy here, it wasn't created in Chicago.

The buffalo were collected in Kenya in 1906, on the same expedition where Akeley and wife Delia collected the iconic "Fighting Bull Elephants" in Stanley Field Hall. Not long after the elephants were completed in 1909, Akeley left the Field's staff, but he continued doing contract work for the Field—in a studio at the American Museum of Natural History in Manhattan. The buffalo was his first contract, and the only one he finished. (See the article on pages 26 and 27.)

Akeley began the work in summer 1912, promising Field Museum President Stanley Field that he would have the group ready by November. However, due to his incessant experiments with new taxidermy methods, and commitments at the AMNH, he didn't install the buffalo until December of 1914. While the group may not be one of Akeley's most famous Field Museum works, the quietly imposing figures show "the Father of Modern Taxidermy" at the peak of his artistry.

Carl Akeley, widely considered "the Father of Modern Taxidermy," was also a naturalist, sculptor, writer and inventor.

Over his long career he worked for several different museums, including the Field Museum, serving as Chief Taxidermist from 1896 to 1909. He made two expeditions to Africa for the Field to bring back specimens for the collections and for display. Most of his taxidermy is still on display in the Carl Akeley Memorial Hall (Mammals of Africa), Nature Walk, and the other mammal displays throughout the Museum.

Sleuth-out these Hidden Gems

See if you can find these Carl Akeley displays on your next visit!

○ These huge beasts collected by Carl and Delia Akeley have been an iconic attraction in the Field Museum's main hall since 1909 (at our original building in Jackson Park, and in this building as of 1921). Are they really fighting, or playing? You decide!

○ Delia Akeley, wife of Carl Akeley, collected 693 bird specimens on the 1905-06 expedition to Kenya. You can see one of them in the *Ronald and Christina Gidwitz Hall of Birds*, in the "Starlings (Sturnidae)" case. It's very colorful, and when you read the label, you'll know it's a superb specimen!

○ Most great artists sign their work, and Carl Akeley was no exception. Look for *C E Akeley 1900* written on a rock at the base of a group of big antelope that stand guard at the entrance to Rice Hall.

○ Akeley's first two habitat groups for the Field Museum, created in 1896, are at the very end of the Hall of Asian Mammals. The backgrounds were added in the 1930s, but the liveliness of Akeley's animals was evident even then. Let's just say both groups are having more fun than a barrel of...

○ 19th century taxidermy tended to have rather stiff poses. Akeley is known for the dynamism and activity of his animals. Wander the Daniel F. and Ada L. Rice Wing and you'll see a Lesser kudu mom licking her fawn, a Waller's gazelle stretching way up to eat a leaf on a tree, and spotted hyenas searching for something in the rocks.

○ Winter, spring, summer, fall...these four Akeley groups marked a turning point in museum dioramas. And they are very ***deer*** to us.

○ Another large group of North American mammals was mounted by Akeley, but not with specimens he collected—the Museum purchased the hides from a whaling company in New Bedford, Massachusetts. Look for a family of seven large animals, roaming the Northwest Territories of Canada on the lookout for wolves.

○ Akeley's taxidermy method was based on sculpture methods, and he later branched out to "real" sculpture in bronze. His largest bronzes tell the dramatic story, in three acts, of a traditional lion spearing by hunters of the Nandi tribe of east Africa. It's on the Ground floor—and hard to miss!

Take me out and explore!

BRINGING THE FIELD MUSEUM TO CPS CLASSROOMS

BY ELEANOR SWEENEY, SCHOOL LEARNING EXPERIENCES EDUCATOR; AND **MIREYA BECKER**, SCHOOL LEARNING EXPERIENCES DIRECTOR

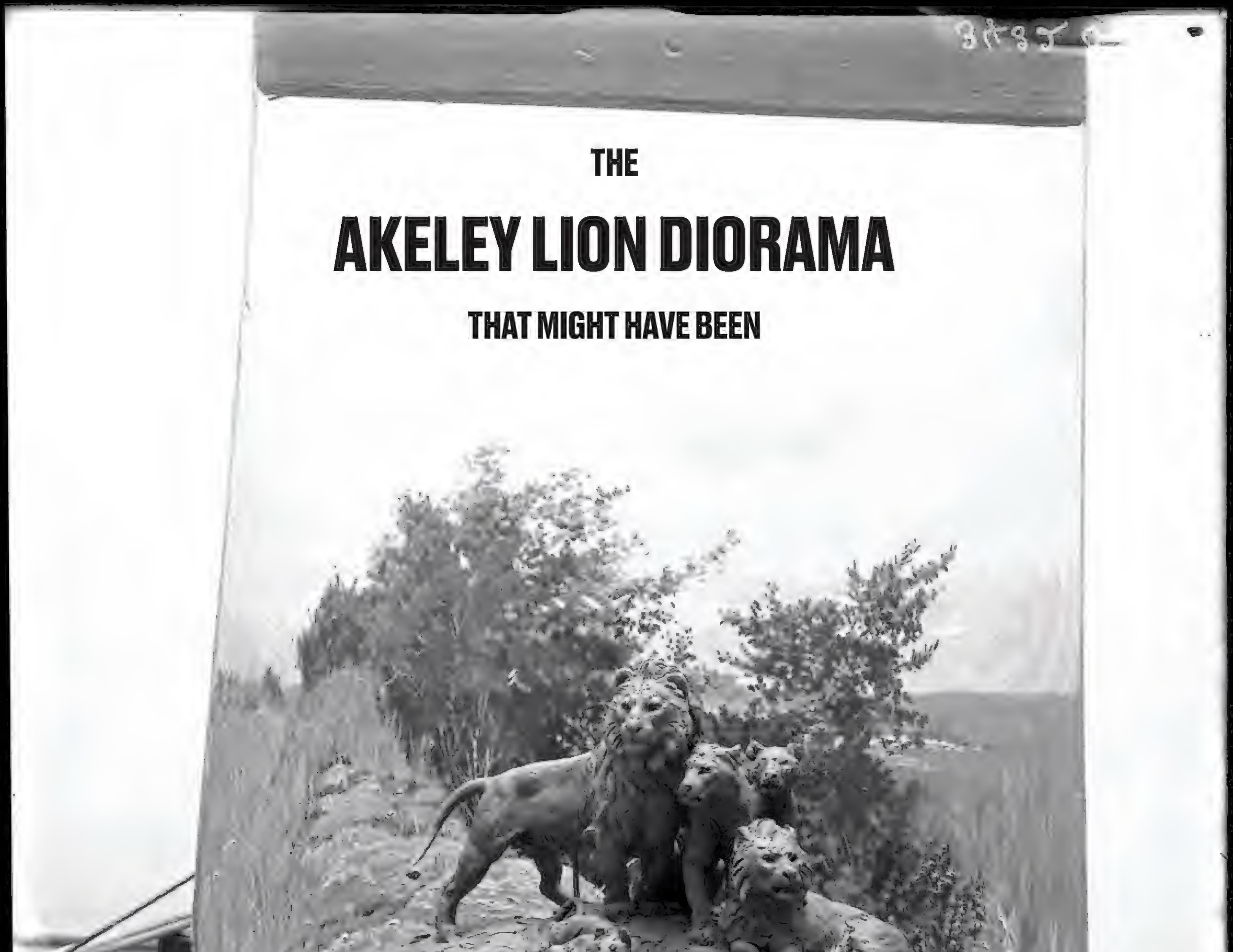
The Field Museum's School Partnership program has been working closely with a group of Chicago Public Schools on the south and west sides to bring highly engaging learning experiences to over 2,000 students at 14 schools. This program follows a holistic approach to school partnerships and consists of in-classroom workshops with students and teachers, facilitated trips to the Field Museum, and a co-curated Science Night at each school. Workshop topics range from the Field Museum's prized Tully Monster to animal adaptations to Chicago ecology to storytelling.

Science Nights engage the school's entire community in museum-based learning. Teachers and other Field Museum Learning staff run exploratory, hands-on activities for students and their families that reinforce classroom activities using *N.W. Harris Learning Collection* materials. Field Museum staff facilitated experiences covering a range of topics from medicinal plants to fossil identification. Schools have reported that Science Nights have garnered the largest attendance in recent years and have been successful in bringing the Field Museum to their communities. In the 2023-2024 school year, the Field will expand this program to include more schools in their partnership outreach, as well as creating a Teacher Fellowship to support educators in developing student-centered projects that leverage the amazing resources and collections of the Field Museum.

(Top) Collections Assistant Jim Louderman facilitates a live insect experience with CPS students.

(Above) Students get hands on with science using N.W. Harris Learning Collection *materials.*

THE
AKELEY LION DIORAMA
THAT MIGHT HAVE BEEN



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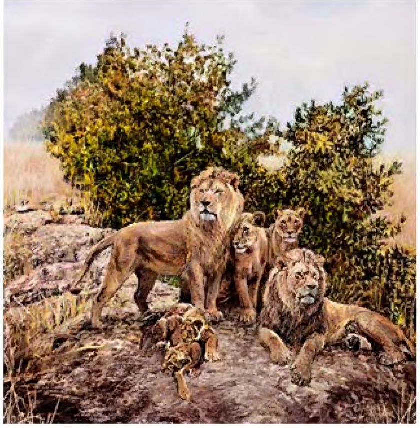
By Tom Gnoske
ASSISTANT COLLECTIONS
MANAGER OF BIRDS, GANTZ
FAMILY COLLECTIONS CENTER

Mark Alvey
ACADEMIC
COMMUNICATIONS
MANAGER

Field Museum diorama fans undoubtedly have favorites. Maybe "Father of Modern Taxidermy" Carl Akeley's influential "Four Seasons of the Virginia Deer," or his 1899 striped hyenas (which moved to a new home in 2015), or perhaps one of the stunning groups done by Akeley's protégés in the 1920s and '30s. Recently, a lion diorama that Akeley started but never finished has captured our imaginations, in part because that's where it resides (our imaginations), but also because he left evidence of how he envisioned it.

The lions were collected on the same expedition to Kenya on which Akeley and wife Delia collected the iconic Fighting African Elephants on display in Stanley Field Hall.

In a 1906 letter from camp, he advised Field Museum Director Frederick Skiff that he had collected lions for "a magnificent group." After completing the elephants in 1909, Akeley resigned from the Field and moved to New York as a freelance collector/taxidermist, working mostly for the American Museum of Natural History (AMNH). However, he continued mounting African mammals for the Field in his AMNH studio. His last finished Field Museum project, the African buffalo, was installed in December 1914 (at our original Jackson Park location), and stands today in Rice Wildlife Research Station opposite the Tsavo man-eaters.



Next, Akeley agreed to take on a lion group and a group of eland (antelope) from the same expedition. In 1914, he and noted animal sculptor A. Phimister Proctor collaborated on a small clay model for the lions. *The American Museum Journal* billed it as a model for AMNH's proposed African Hall, but the evidence suggests otherwise. Akeley was neither working on nor planning a lion group for the AMNH, the animals in the model align with specimens he collected on the 1906 Field Museum expedition in sex and size, and the model's terrain and background match photographic studies Akeley made on that trip. There's little doubt that the model was for the museum by Lake Michigan, not the one by the Hudson River.

However, between starting an elephant group for the AMNH and his Field Museum contracts, Akeley had too much on his plate, even for a compulsive workaholic. He completed four eland manikins for the Field, but there were problems with the skins and they were never installed. He started modeling the lions in September 1915, but they were still in limbo in the fall of 1917, when he was appointed a Consulting Engineer for the U.S. Army, a year-long commitment that over-extended him even more. Eventually, in 1925, Field Museum President Stanley Field wrote to Akeley and asked for the eland and lion material back. Two of the eland skins were apparently destroyed when the project was abandoned, but the rest, along with the lion skins, are still in our collection.

Although the eland group was lost to history, taxidermy devotees still have the "magnificent group" of lions, as depicted in the model—and in our imaginations.

(Opposite) The lion group model created by Carl Akeley and sculptor A. Phimister Proctor in 1914.

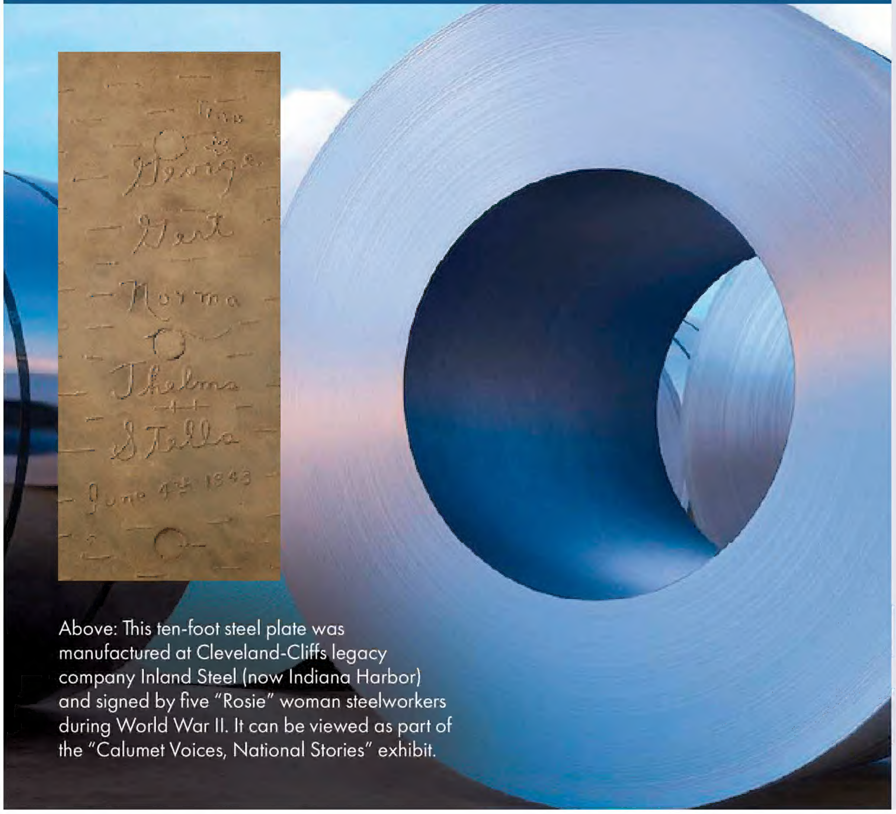
(Above, left) An artist's conception of the Akeley lion group had it been completed.

(Above, right) A field shot taken by Carl Akeley in June 1906, from a Photo Archives album labeled "Views of Lion Cave on Athi River." Note the close resemblance of the terrain and shrubbery to that in the model (left).

ARTWORK BY VELIZAR SIMEONOVSKI

FIELD MUSEUM, CSZ20079

CLEVELAND-CLIFFS IS STEEL



Above: This ten-foot steel plate was manufactured at Cleveland-Cliffs legacy company Inland Steel (now Indiana Harbor) and signed by five "Rosie" woman steelworkers during World War II. It can be viewed as part of the "Calumet Voices, National Stories" exhibit.

As a major employer in the Great Lakes region, Cleveland-Cliffs honors our past by building a sustainable future. Since our founding in 1847, we have been a company committed to the regions where we operate, working from a foundation of safe production, philanthropic giving and environmental stewardship. We collaborate with our customers, leveraging steel's unique and sustainable properties in innovative solutions for today's society.

Cleveland-Cliffs is proud of our place in the history of American steelmaking, and proud to be a sponsor of the "Calumet Voices, National Stories" exhibit at the Field Museum.

CLIFFS

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Member Opportunity

COME IN FROM THE COLD AND ENJOY THE HOLIDAY MEMBERS' LOUNGE!

Members and donors visiting during the bustling holiday week are invited to join us for a quiet break in the Museum's Founders' Room. Stop by and warm up with a toasty hot beverage. Enjoy family-friendly activities for your young explorers and light refreshments while you're there—families and friends are also welcome!

The Member Lounge will be open Tuesday, December 26 through Friday, January 5 from 10am-4pm.

Museum Hours

The Field Museum is open from 9am–5pm every day except Thanksgiving and Christmas Day, with last admission at 4pm. For special hours, parking, and public transportation options, visit **fieldmuseum.org/visit**.

The Field Museum salutes the people of Chicago for their long-standing support of the Museum through the Chicago Park District.

UNITED AIRLINES

Official Airline of the Field Museum

ILLINOIS ARTS COUNCIL AGENCY

This program is partially supported by a grant from the Illinois Arts Council Agency.

INSPIRING MINDS, BUILDING
A HEALTHIER WORLD

Abbott proudly supports the Field Museum and its pursuit to connect all of us. That's why we're sponsoring the immersive exhibit, *Bloodsuckers: Legends to Leeches*.

Because blood sustains us all, please join us for our life-saving mixed reality blood drive, and together, we can build a healthier future for all.

JOIN OUR MIXED REALITY BLOOD DRIVE
Friday, October 27 | 8:00 a.m.–2:00 p.m.
Saturday, October 28 | 9:00 a.m.–2:00 p.m.
The Field Museum | Main level near Máximo the Titanosaur

SCHEDULE YOUR APPOINTMENT NOW
bethe1donor.com/bloodsuckers

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- Discounts on year-round educational programs and in the Museum's stores and restaurants
- And so much more!

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**This offer can only be applied to Field Museum Gift Memberships (Individual, Family, and Family Plus Memberships)*